MS. MABEL REBELLO: Sir, it is not 12 kilometres. It is almost 100-150 kilometres. That is what I know. ...*(Interruptions)*...

MR. CHAIRMAN: Please allow the answer to proceed.

SHRI SHIVRAJ V. PATIL: So, this is the area in which they are allowed because these are the areas where the roads are not constructed and the people living in the forest areas belong to families and relations and all those things. So, both the Government have decided that up to 40 kilometres on the borders, free access will be allowed. But if they come beyond 40 kilometres, then, it is possible and it is necessary to take action against them if they are coming without permission. But these are the areas where the population is very sparsely located and it is not infiltration that is taking place on these borders because the population is very limited. It is also very low. Here and there, instances of people coming from one side to the other side may be there and it is also very difficult to recognise them because there are a lot of similarities, facial similarities and the language similarities and all those things. Now, this is the situation in which the border forces are working.

MR. CHAIRMAN: Question No. 183. ...*(Interruptions)*...

**श्री ललित किशोर चतुर्वेदी**: सर, हम प्रश्न पूछने के लिए बहुत पहले से हाथ उठा रहे हैं। ....(**व्यवधान**).

MR. CHAIRMAN: See, I have to follow the established procedures. ...*(Interruptions)*...

**श्री कलराज मिश्र**: सर, मैं सप्लीमेंट्री प्रश्न पूछना चाहता हूं। ....(**व्यवधान**)...

MR. CHAIRMAN: We will come to you. ...*(Interruptions)*... Q. No. 183.

**Low Investment in R & D**

**♦183.** SHRI N.R. GOVINDARAJAR: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

**(च)** whether investment in Research and Development in Science and Technology in India remains below the required level as compared to the other developing countries;

**(छ)** whether Government proposes to liberalize Research and Development system to enhance scientific activities in the country;

**(ज)** whether Government has submitted any plan for Research and Development in Science and Technology to the Planning Commission; and

**(झ)** if so, the details thereof?

THE MINISTER OF SCIENCE AND TECHNOLOGY (SHRI KAPIL SIBAL): (a) to (d) A Statement is laid on the Table of the House.

*Statement*

(a) Acording to the available official statistics, the expenditure on Research and Development (R & D) as percentage of Gross Domestic Product (GDP) in India is lower compared to that of a few developing countries like Brazil and China, but it is higher compared to several developing countries like Argentina, Cuba, Sri Lanka and Paksitan as given in the Statement-I *(See* below)

The Government has liberalised R & D system to enhance scientific activities in the country in various ways. These include policy reforms, procedural reforms and organisational reforms such as formulation of S & T policies, setting up of autonomous research organisations and facilities in emerging and frontline areas, fiscal incentives and support measures to encourage investment on R & D in industry, national awards for outstanding R&D and encouraging public-private R&D partnerships.

and (d) Yes, Sir. The scientific Departments namely Department of Science & Technology, Biotechnology, Scientific & Industrial Research, Atomic Energy, Space and Earth Sciences have submitted their plan proposal to the Planning Commission for XI plan allocations. The XI plan allocation for Scientific Departments has increased to Rs. 75,304,00 crores as compared to Rs. 25,301,35 crores during X Plan as given in the Statement-II.

*Statement-I*

*Details of Expenditure on R & D as percentage of GDP for Selected Countries,* 2000-02.

| SI. No. | Country | R&D Exp. as % GDP |
|---|---|---|
| 1 | 2 | 3 |
| 1. | Argentina | 0.39 |
| 2. | Australia | 1.55 |
| 3. | Austria | 2.21 |
| 4. | Brazil | 1.04 |
| 5. | Canada | 2.00 |
| 6. | Cuba | 0.65 |
| 7. | Czech Rep. | 1.30 |
| 8. | Denmark | 2.51 |
| 9. | Egypt, Arab Rep. | 0.19 |
| 10. | France | 2.27 |
| 11. | Germany | 2.64 |
| 12. | China | 1.23 |
| 13. | Hungary | 1.01 |
| 14. | India | 0.80 |
| 15. | Israel | 5.11 |
| 16. | Italy | 1.11 |
| 17. | Japan | 3.11 |
| 18. | Korea, Rep. | 2.91 |
| 19. | Pakistan | 0.27 |
| 20. | Russian Fed. | 1.24 |
| 21. | Singapore | 2.20 |
| 22. | Spain | 1.04 |
| 23. | Sri Lanka | 0.20 |

| 1 | 2 | 3 |
|---|---|---|
| 24. | Sweden | 4.27 |
| 25. | United Kingdom | 1.88 |
| 26. | United States " | 2.67 |
| 27. | Venezuela, RB | 0.38 |

SOURCE: UIS, UNESCO 2005 and World Development Indicators 2007, the World Bank India - Research & Development Statistics, 2004-05 DST (Gol) China excludes Hong Kong.

*Statement-II*

*Details ofX & XI Five Year Plan outlays/Expenditure (In Rs. Crores) of Central Scientific Departments*

| S. No. | S&T Departments/Agencies | X Plan (2002-07) Approved outlay | Anticipated unutilisation | XI Plan (2007-12) Approved outlay | Annual Plan (2007-08) BE | Annual Plan (2008-09) BE |
|---|---|---|---|---|---|---|
| 1. | Department of Atomic Energy (R&D Sector) | 3501.35 | 319945 | 11000.00 | 1215.00 | 1228.00 |
| 2 | Deptt of Ocean Development/ Ministry of Earth Sciences | 1125.00 | 1048.69 | 7004.00 | 690 00 | 750.00 |
| 3 | Deptt of Science and Technology | 3400.00 | 3998.12 | 11028.00 | 1526.00 | 153000 |
| 4 | Deptt. of Bio-Technology | 1450.00 | 164966 | 6389.00 | 675 00 | 900 00 |
| 5. | Deptt. of Scientific & Industrial Research | 2575.00 | 2785.77 | 9000.00 | 1070.00 | 1200.00 |
| 6. | Department of Space | 13250.00 | 10870.51 | 30883.00 | 3420.00 | 3600.00 |
| | GRAND TOTAL | 25301.35 | 23552.20 | 75304.00 | 8596.00 | 9208.00 |

SHRI N.R. GOVINDARAJAR: Sir, my first supplementary is this. India has less then three take researchers in the field of science and technology whereas, our neighbouring country, China has more than nine lakh researchers in science and technology. Sir, in view of it, I would like to know from the hon. Minister the efforts made or proposed to be made to increase the number of researchers in science and technology.

SHRI KAPIL SIBAL: Mr. Chairman, Sir, I am thankful to the hon. Member to have raised this issue. This is a matter that has exercised us for a period of time. Actually, the number of core researchers in this country is really not three lakhs or near that number. It is, in fact about 1.15 lakhs, and, as compared to China; China has about 8-10 lakhs people in research. In fact, if you compare our people doing R&D in this country in comparison to other countries in the world, you will find, the Scandinavian countries, for example, have a figure of about 7000 per million population; in the United States, it is about 4700 per million population, whereas, in India, it is 156.

So, this is a very big issue and as far as the Government is concerned, the issue must be managed not only through greater investments by the public sector but also through more

investments in the private sector. The reality. Sir, is that as far as India is concerned invesment in the R&D age percentage of GDP, is 0.8 per cent whereas in China, it is 1.23 per cent. In other countries of the world it is close to two or even three per cent, especially in the developed countries. But the component of the Government in this 0.8 per cent is 0.6 per cent, which is almost 80 per cent of the total investment in R&D. It is much more than that of any other country in the world. In China, the component of the public sector is close to 30 per cent. In the United States, it is about 30 per cent. In Japan, it is about 18 per cent. So, the public sector component in R&D is much greater in India than perhaps any other country in the world. But, unfortunately, the private sector component is much less. So, as the private sector moves forward with liberalisation, and more money comes into the system, hopefully, the private sector component in R&D will increase. But as far as the Government is concerned. Sir, we are taking action in several areas. Firstly, in terms of tax incentives, the kind of incentives this Government has given has never been done before. For example, we now give a 150 per cent weighted deduction in the pharma sector, in the aeronautics sector, in the biotech sector, in the electronic sector and in several other sectors. We give a 125 per cent weighted deduction for sponsored research. Even for private companies now, as never before, we gave a 100 per cent deduction in both revenue and capital expenditure if it went into R&D. Companies can claim exemption from excise. They can claim exemption from customs duties. Let me just give you an example, Sir. In the pharma sector, earlier, when pharma companies used to go for clinical trials— phase-I and phase-II could be done in India—the expenditure made for Phase-Ill and Phase-IV outside India was not deductible. When our companies used to go outside for filing patents, which is a hugely expensive proposition, it was not deductible. But today, for example, under the Finance Act both activities are deductible. This has been done by this Government what has been done in the last three or four years, has never been done before in this country. We are now trying to improve the quality of researchers in this country. We are trying to set up two star colleges in every State. We are setting up centres of excellence in the university system. The problem is that in the last 25 years, our university stystem has expanded two-and-a-half times, but research has not expanded. As far as national research laboratories are concerned, that number is. at least, static; it has not decreased. But the university system has to be strengthened and we are trying very hard to do that.

SHRI N.R. GOVINDARAJAR: Sir, my second supplementary question is this. Basic scientific research programmes launched by the UGC are not sufficient to boost scientific research in the country. What are the steps taken by the Government to attract youngsters in universtities, colleges and schools in the field of science and technology? Also provide details of the programmes undertaken to promote science education in the country.

SHRI KAPIL SIBAL: I again wish to thank the hon. Members, Sir. Let me just tell you what the Department of Science and Technology has recently laucnhed. We have launched a programme called Inspire and that was also reflected in the hon. Finance Minister's speech. Now, under this programme, we are going to give 10,000 scholarships of Rs. one lakh per year to students who want to do B.Sc. course. As soon as they get admitted to the B.Sc. course, they are going to get Rs. one lakh per year for a period of five years. We have already collected from the university system, 68,000 applications. Sixty-eight thousand students have applied. We are now going to sift them and give them the scholarship. If they continue their studies further and do the Ph. D programme, we are going to assure them a thousand positions. And then, if they complete their doctoral and post-doctoral, we will absorb them into employment within the system. This is the first time, again, that this Government has

started this programme. It has never been done in the past. So, we are taking very effective steps to encourage people coming into science and technology. Not only that. Sir, we want to bring women back into the system. Brindaji is smilling. She always smiles and that is a very good thing.

SHRIMATI BRINDA KARAT: You said 'Government in the past'. You have been in Government in the past. That is why I smiled, Sir.

SHRI KAPIL SIBAL: Unlike you, we are sometimes critical of ourselves. *(Interruptions)*

MR. CHAIRMAN: Please go ahead.

SHRI KAPIL SIBAL: One should rather be honest than dishonest. We are trying to bring women into the system. ...*(Interruptions)*.. We are trying to bring women into the system. We are, for example, launching a Flexi-employment Scheme. We believe, for example, that women who are bringing up children, especially till the age of three years, should have the ability to come back to work and should not lose their employment as they raise their children up to the age of three years. We are also contemplating a situation where, especially nowadays when the Board exams are going on and the maximum stress is on women, we would like to give them three months leave so that they can take care of children's studies and come back to work. We are also trying to set up a system by which women can work from home and come back into the system.

DR. K. KASTURIRANGAN: Sir, I would like to, first of all, say that the S & T Budget increase for the 11th Plan compared to the 10th Plan is really three-fold from Rs. 24,000 crore to Rs. 75,000 crore. It is a good thing to note that this enhancement has taken place in the 11 th Plan Budget. But the question is related to the absorption of this Budget in various science and technology institutions and it is a matter of concerns, for two reasons. One, of course having the adequate number of researchers, the human resource, and the second aspect is one that is related to the infrastructure, that is, the need to have timely availability of infrastructure to carry out ambitious programmes that we want to undertake in the 11th Plan. In the first case, the hon. Minister has already said that the Ministry is trying to look at what is the best way to attract young talent and also to increase the number of researchers available in the country to ensure that our programmes and targets are met. Is there a policy where we can draw the best of the talents across the world -China does it nowadays -irrespective of the nationality and ensure that our reearch and developmental objectives are adequately met in terms of the human resource by a suitable policy framework? That is the first one. The second question relates to the infrastructure. Are we having a mechanism to ensure that the timely establishment of infrastructure will take place so that we do not have the problems of lack of availability of facilities for conducting front-ranking research?

SHRI KAPIL SIBAL: Sir, there are really two questions that I need to answer. Let me just answer the question of infrastructure first. As far as infrastructure is concerned, Sir, the real infrastructure development needs to take place not in the National Laboratory system, but more in the University system. Sir, 25 years ago, the University used to produce 50 per cent of the research and the National Laboratory system used to produce 50 per cent of the research. Unfortunately, in the last 25 years, University system having expanded two-and-half times, the R&D quantum within the University system has completely vanished and universities are only doing administrative work. So, the problem is that we need to enhance the R&D capacity of the University system and that really needs the attention of the Government to think of new ways of getting high quality people into the country and producing

Centres of Excellence. This is why, Sir, this Government has been talking of expanding the UT system, setting up institutions of engineering, education and research, setting up Central Universities and getting more funds into the system. All these policy decisions by this Government are intended to enhance the R&D infrastructure within the University system. But we, in the Ministry of Science & Technology, have a programme called 'FIST' which is directed towards the development of infrastructure and in the last seven years we have put in Rs. 740 crores into the FIST programme enhancing the infrastructure capability of 1200 Departments within the University system, and in 2007-08 we have helped 140 Departments with an investment of Rs. 220 crores. So, we are trying very hard to improve the infrastructure. The second aspect of the question is to bring in high quality research into the system. I want to just mention that, Sir, for several years the Department of Science and Technology has been handicapped because of policy. If a post in the Science Department is not filled up in one year's time the post no longer exists. Now, again, for the first time, we have taken a decision that this will not apply to the Department of Science and Technology. We have a sanctioned strength of 6693 within our CSIR system. Till now, 4700 posts have been filled up. In the next one or two years, you will see the entire vacancies being filled up without having got abolished. That is one other way in which we are enhancing our research capability. So, several steps are being taken and we are setting up centres of excellence within the university system with the Department of Science and Technology providing funds to enhance the capability of research.

SHRI RAHUL BAJAJ: From the hon. Minister, we have heard regarding tremendous work being done to increase the R&D work in laboratories and, hopefully in the universities. But, as he has himself mentioned, we know that in the universities, even teaching is a disaster, by and large, and R&D almost does not exist. May I, through you, request the hon. Minister to let us know what is being done, apart from employing people and apart from spending more? We have outlays, in the words of our Finance Minister, but in terms of research, which is useful, which can be commercialised, which can be used by industries in terms of producing goods and services, there is no outcome, or very little outcome is there. So, one way to do it is to increase substantially academia-industry interaction. There is a mindset problem on both sides, but if the universities and their R&D departments can be held accountable for some time-bound programme, then that could improve'matters because without that, we are not having outcomes and we are not getting any R&D which is useful to the citizens of this country.

SHRI KAPIL SIBAL: Mr.Chairman, Sir, one other thing is that the private sector in the country must ask itself the question why it is that in 0.8 per cent of the GDP, which is the amount spent on research, private sector's involvement is only 0.2 per cent, whereas in the rest of the world, it is much more. It is, in fact, the majority.

SHRI RAHUL BAJAJ: It is increasing now.

SHRI KAPIL SIBAL: It is increasing, but it is still a miniscule amount and this question must be asked by industry of itself. So, hon. Member is right that sometimes, the outcomes are not so good as the outlays and outcomes from the private sector are also not so good as investments made by the private sector. Secondly, what I want to mention is that I think this House should debate this issue for one full day. What we need is a national consensus on education because the challenge in the 21 st century for this country is going to be able to use the demographic resource that we have and put it to use not only for national development processes in India, but also being able to supply that force to the rest of the world where demographics are on the

decline. This can only be done not through politics but through a national consensus. 1 would suggest. Sir, that there should be a debate on this very important issue.

SHRI PRAVEEN RASHTRAPAL: Sir, I do not understand why such a learned Minister is comparing India only with countries like Argentina, Cuba, Pakistan and Sri Lanka. In fact, Pakistan and Sri Lanka were part and parcel of India 60 years ago. He should have compared our country with Israel, Singapore and Korea as to why they are doing better than India among the developing countries. That is my statement. I am coming to my question now.

MR. CHAIRMAN: Don't make a statement. Please, put the question.

SHRIMATI BRINDA KARAT: Sir, we request that same standards should be there for Ministers also.

MR. CHAIRMAN: It does apply to the Ministers also, and all the hon. Members of this House.

SHRI PRAVEEN RASHTRAPAL: Sir, statistics can be utilised on both sides. The income of Mr. Tata and the income of Praveen Rashtrapal can be added, divided by two and it can be said that the average income is satisfactory. That will not work. The money, which the hon. Minister is going to get for his Department during the current Plan, is Rs. 75,000 crore. I am worried only for one man in the rural India, that is, kumhar who is making vessels for urban people for the last one thousand years. Our country has not made any innovative change in his work

MR. CHAIRMAN: Could you, please, put the question?

SHRI PRAVEEN RASHTRAPAL: Sir. I want to know from hon. Minister whether his Department, with the help of Rs. 75,000 crores, will convert the wheel used by *kumhar* into a comfortable one as we have done in *khadi* and *gram udyog* sector by converting Mahatma Gandhi's *charkha* into *ambar charkha*. So, at least, that type of innovation can be made.

SHRI KAPIL SIBAL: Mr. Chairman, Sir, I think, the hon. Member has asked a very important question and it deserves serious consideration. Quite frankly, Mr. Chairman, Sir, when we talk about science and innovation, it is of no value unless it touches the life of the common man. We can do any kind of research in space, in high technology in emerging areas but the ultimate benefit must flow to the common man and unless we are able to do that and change his life, I do not think there is any point in tom-toming about science and technology policies.

This is, in fact, a commitment of this Government that through the intervention of science and technology, we want to change the lives of the people. Let me give the hon. Member an example.

MR. CHAIRMAN: Answer please.

SHRI KAPIL SIB AL: Yes, Sir. This is the answer. In Kavaratti, there were eleven thousand people who did not have drinking water. We, through, science and technology, set up a desalination plant through which we were able to convert sea water into drinking water by using a specific indigenous technology. Now, those eleven thousand people have eleven litres of water per capita per day, which they never had earlier.

We are setting up one million-litre plant outside Chennai, which is going to be upgraded to ten million-litre capacity, and, we are bringing the industry into the system to set up such plants all over the coast. In the agricultural sector, we are going to change ...*(Interruptions)*...

SHRl SHAHID SIDDIQUI: Sir, this is ...*(Interruptions)*...

MR. CHAIRMAN: Please let the question be answered quickly.

SHRl KAPIL SIBAL: Sir, in the agricultural sector, we are ...*(Interruptions)*...

SHRIMATI BRINDA KARAT: Sir, the question ...*(Interruptions)*...

MR. CHAIRMAN: Please *(Interruptions)*.

SHRI KAPIL SIBAL: Sir, in the agricultural sector, we are changing the lives of the common man because we are, through technology, able to inform the *kisan* of the levels of productivity of his land, on the crop yield ...*(Interruptions)*...

SHRIMATI BRINDA KARAT: Sir. we are ...*(Interruptions)*...

SHRI KAPIL SIBAL: And, therefore, our Government is committed to change the life of the common man.

MR. CHAIRMAN: Question No. 184. Hon. Member absent. Question No. 185.

**श्री शरद यादव**: सभापति जी, क्वैश्चन 184 हैं। ....(**व्यवधान**)...

**श्री सभापति** : वे यहां पर नहीं हैं ....(**व्यवधान**)... Neither of the two Members who have asked the question is here. So, it cannot be taken up.

**श्री शरद यादव**: सर, यह ठीक नहीं हैं ....(**व्यवधान**)... सभापति जी, मैं इसको महसूस करता हूं कि यह सवाल जो है ....(**व्यवधान**)...

**एक माननीय सदस्य**: सर, यह एक महत्वपूर्ण क्वैश्चन है ....(**व्यवधान**)... इसको अलाऊ करना चाहिए ....(**व्यवधान**)...

**श्री सभापति**: नहीं। इसे कैसे अलाऊ करना चाहिए? ....(**व्यवधान**)... इसको अलाऊ करना चाहिए ....(**व्यवधान**)...

**श्री सभापति** : नहीं। इसे कैसे अलाऊ करना चाहिए? ....(**व्यवधान**)... जिन्हें सवाल पूछना है, अगर वे यहां नहीं हैं, तो उसका जवाब कैसे दिया जा सकता है? ....(**व्यवधान**)...

**श्री शरद यादव**: यह आपका prerogative हैं ....(**व्यवधान**)... आप कर सकते हैं ....(**व्यवधान**)... कई बात होता हैं ....(**व्यवधान**)..

. **श्री सभापति ; देखिए हमारी जो एक पंरम्परा । है उसपर हम चल रहे** ,,,,, (**व्यवधान**)

**श्री शरद यादव ; यह आपका prerogative है** (**व्यवधान**)

**MR. CHAIRMAN ;let us go to Question No.** 185 (**Interruptions**)

**श्री रवि शंकर प्रसाद**: लेकिन, सर यह सवाल बड़ा महत्वपूर्ण था। ....(**व्यवधान**)...

**श्री सभापति**: अब क्या किया जाए? ....(**व्यवधान**)...

**श्री रवि शंकर प्रसाद**: यह सवाल बड़े गम्भीर विषय पर था ....(**व्यवधान**)... शरद जी सही कह रहे हैं।

MR. CHAIRMAN: Question No. 185.

* 184. [The questioner(s) (Shri Gireesh Kumar Sanghi) and (Shri Jesudasu Seelam) were absent. For answer *vide* page 21.]

**Viability of SEZs in present economic scenario**

*185. SHRI D. RAJA: Will the Minister of COMMERCE AND INDUSTRY be pleased to state:

(a) whether Government has done any study or assessed the impact of the recent global economic slow down on the use and future of the numerous Special Economic Zones (SEZs) sanctioned in the country in the last two years;